

close relationship between the maximum summer rainfall and the grasslands of the country.

The second publication¹⁸ contains relief and precipitation maps of the world and numerous larger and smaller maps showing the agricultural production of all lands. Many other data are contained in the text and in various tables. Several recent papers have successfully related crop possibilities to natural vegetation, but these maps provide material for reversing the process and of relating natural vegetation to areas of crop production.—GEO. D. FULLER.

Seedling of dicotyledons.—SINNOTT¹⁹ has made a comparative study of the seedling throughout dicotyledons, in order to distinguish between conservative and variable characters. It is a very timely distinction to emphasize, for the application of the law of recapitulation to variable characters has led to more or less confusion. The number of protoxylem poles is found to be a very variable character. More constant is the relation between the vascular system of the hypocotyl and that of the epicotyl, two main types being recognized. The venation of the cotyledon was found to be very constant; and also an odd number of veins was found to characterize the seedling of all dicotyledons, distinguishing it from that of the gymnosperms. The most conservative character is the structure of the cotyledonary trace.—J. M. C.

Monographs on experimental biology.—The first volume of a series of monographs dealing with experimental biology and general physiology has appeared under the editorship of JACQUES LOEB, T. H. MORGAN, and W. J. V. OSTERHOUT. The first monograph²⁰ deals with forced movements, tropisms, and animal conduct. Among the monographs in preparation are "The chromosome theory of heredity" by T. H. MORGAN; "Inbreeding and outbreeding; their genetic and sociological significance," by E. M. EAST and D. F. JONES; "Pure line inheritance," by H. S. JENNINGS; "The experimental modification of the process of inheritance," by R. PEARL.

This series represents an important event in American science, and deserves the cooperation of the scientific men of the country.—J. M. C.

A new phytopathological journal.—The first number of the *Annals of the Phytopathological Society of Japan* has just appeared, including 5 papers. Some of the papers are in English, and those in Japanese include a summary in English, so that all of them are available for foreign botanists. The contributors to this first number and their titles are as follows: M. SHIRAI, "On the

¹⁸ FINCH, V. C., and BAKER, O. E., Geography of the world's agriculture. 10×13.5 inches. pp. 149. figs. 207. 1917.

¹⁹ SINNOTT, E. W., Conservatism and variability in the seedling of dicotyledons. Amer. Jour. Bot. 5:120-130. figs. 4. 1918.

²⁰ LOEB, JACQUES, Forced movements, tropisms, and animal conduct. Svo. pp. 209. figs. 42. Philadelphia: J. B. Lippincott Co. 1918. \$2.50.